

## **805 KAR 4:110. Initiation of explosive charges; electric blasting.**

RELATES TO: KRS 351.350

STATUTORY AUTHORITY: KRS Chapter 13A, 351.335

NECESSITY, FUNCTION, AND CONFORMITY: KRS 351.335 requires the Department for Natural Resources to promulgate rules and administrative regulations concerning the manufacture, transportation, sale, storage, or use of explosives and assembled components of explosives, and the maintenance of such explosives which has a direct bearing on safety to life and property. This administrative regulation effects the provisions of that law.

Section 1. (1) Electric blasting caps shall not be used where sources of extraneous electricity make the use of electric blasting caps dangerous. Blasting cap leg wires shall be kept short-circuited (shunted) until they are connected into the circuit for firing.

(2) Before adopting any system of electrical firing, the blaster shall conduct a thorough survey for extraneous currents, and all dangerous currents shall be eliminated before any holes are loaded.

(3) In any single blast using electric blasting caps, all caps shall be of the same style or function, and of the same manufacture.

(4) Electric blasting shall be carried out by using blasting circuits or power circuits in accordance with the electric blasting cap manufacturer's recommendations, or those of an approved contractor or his designated representative.

(5) When firing a circuit of electric blasting caps, care shall be exercised to insure that an adequate quantity of delivered current is available, in accordance with the manufacturer's recommendations.

(6) Connecting wires and lead wires shall be insulated single solid wires of sufficient current-carrying capacity. In addition, the lead wire shall be of sufficient length to allow the blast to be detonated from a safe distance and location.

(7) Bus wires shall be solid single wires of sufficient current-carrying capacity.

(8) When firing electrically, the insulation on all firing lines shall be adequate and in good condition.

(9) A power circuit used for firing electric blasting caps shall not be grounded.

(10) In underground operations, when firing from a power circuit, a safety switch shall be placed in the permanent firing line at intervals. This switch shall be made so it can be locked only in the "off" position and shall be provided with a short-circuiting arrangement of the firing lines to the cap circuit.

(11) In underground operations there shall be a "lightning" gap of at least five (5) feet in the firing system ahead of the main firing switch; that is, between this switch and the source of power. This gap shall be bridged by a flexible jumper cord immediately before firing the blast.

(12) When firing from a power circuit, the firing switch shall be locked in the open or "off" position at all times, except when firing. It shall be so designed that the firing lines to the cap circuit are automatically short-circuited when the switch is in the "off" position. Keys to this switch shall be entrusted only to the blaster.

(13) Blasting machines shall be in good condition and the efficiency of the machine shall be tested periodically to make certain that it can deliver power at its rated capacity.

(14) When firing with blasting machines, the connections shall be made as recommended by the manufacturer of the electric blasting caps used.

(15) The number of electric blasting caps connected to a blasting machine shall not be in excess of its rated capacity. Furthermore, a series circuit shall contain no more caps than the limits recommended by the manufacturer of the electric blasting caps in use.

(16) The blaster shall be in charge of the blasting machines and no other person shall connect the leading wires to the machine except under the direction of the blaster.

(17) Blasters shall test all electric blasting caps and electric blasting cap circuits by using only a blasting galvanometer, blasting ohmmeter, or blasting multimeter, designed specifically for the purpose of testing individual electric blasting caps and circuits containing electric blasting caps. Such instruments shall be clearly marked as being designed for such purposes, and shall be used in accordance with the manufacturer's recommendations.

(18) Whenever the possibility exists that a leading line or blasting wire might be thrown over a live powerline by the force of an explosion, care shall be taken to see that the total length of wires are kept too short to hit the lines, or that the wires are securely anchored to the ground. If neither of these requirements can be satisfied, a nonelectric system shall be used.

(19) Leading wires shall remain shorted and not be connected to the blasting machine or other source of current until the charge is to be fired.

(20) After firing an electric blast from a blasting machine, the leading wires shall be immediately disconnected from the machine and short-circuited.

(21) All blasting machines, other than rack-bar and twist type generators, shall have a normally open firing switch equipped with a spring device or other self-returning mechanism that automatically returns it to the nonfiring position after the shot has been detonated.

(22) Due precautions shall be taken to prevent accidental discharge of electric blasting caps or explosives from current induced by radar, radio transmitters, lightning, adjacent powder lines, dust storms, or other sources of extraneous electricity. These precautions shall include:

(a) The shunting or short-circuiting of detonators in holes which have been primed until wired into the blasting circuit.

(b) The suspension of all blasting operations and removal of persons from the blasting area during the approach and progress of an electric storm.

(c) The prominent display of adequate signs, warning against the use of mobile radio transmitters, on all roads within 1,000 feet of blasting operations. Whenever adherence to the 1,000-foot distance would create an operational handicap, this distance may be modified so long as the modification is adequately designed in compliance with paragraph (e) of this subsection to prevent any premature firing of electric blasting caps. Specimens of signs which satisfy these requirements are as follows:

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| Blasting Zone<br>1,000-ft.<br>about 48" X 48" | Turn Off<br>2-Way Radio<br>about 42" X 36" |
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This paragraph shall not apply to surface mining operations.

(d) Mobile radio transmitters which are less than 100 feet away from electric blasting caps in other than original containers may be left "on" for receiving purposes, but may only be used to transmit if in compliance with paragraph (e) of this subsection.

(e) Compliance with the recommendations of the Institute of Makers of Explosives with regard to blasting in the vicinity of radio transmitters as stipulated in "Safety Guide for the Prevention of Radio Frequency Radiation Hazards in the Use of Commercial Electric Detonators," IME Publication No. 20, December 1988, incorporated herein by reference. This document may be reviewed or copied at the Department for Natural Resources, 300 Sower Boulevard, Frankfort, KY 40601 during normal business hours from 8 a.m. to 4:30 p.m.

(23) All electric blasts shall be fired with an electric blasting machine or power source designed specifically for detonating electric blasting caps.

(24) In parallel blasting circuits, the circuit shall be wired so that the resistances in all series are balanced.

(25) When blasting electrically, a blasting galvanometer, blasting ohmmeter, or blasting multimeter shall be used to test:

(a) Resistance of individual caps, series of caps, or the resistance of multiple balanced series to be connected in parallel prior to their connection to the blasting line;

(b) Continuity of blasting lines prior to the connection of electric blasting cap series; and

(c) Total blasting circuit resistance prior to connection in the power source.

(26) Immediately after the blast has been fired, the firing line shall be disconnected from the blasting machine, or where power switches are used, they shall be locked open or in the "off" position. (2 Ky.R. 614; Am. 3 Ky.R. 321; eff. 9-1-76; 4 Ky.R. 306; eff. 5-3-78; 11 Ky.R. 789; eff. 12-11-84; 17 Ky.R. 3274; 18 Ky.R. 50; eff. 6-26-91; TAm eff. 8-9-2007; TAm eff. 7-6-2016.)